



TFW

CASE 20757USC18

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE: APPLICATION OF

Art Unit: TBA

HEIFETZ et al.

Examiner: TBA

APPLICATION NO: 10/625,648

FILED: July 23, 2003

FOR: **HERBICIDE TOLERANCE ACHIEVED THROUGH  
PLASTID TRANSFORMATION**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

✓ This paper is being filed before receipt of the first substantive Office Action. Therefore, no fees are required.

In accordance with 37 C.F.R. §1.56, applicant wishes to call the Examiner's attention to the references cited on the attached form(s) PTO-1449.

The listed references are of record in parent Application No. 09/059,164 filed April 13, 1998, and copies are available therein. However, applicant is willing to send copies of any or all of these references at the Examiner's request.

The Examiner is requested to consider the foregoing information in relation to this application and indicate that each reference was considered by returning a copy of the initialed PTO 1449 form(s).

Respectfully submitted,

Syngenta  
Patent Department  
P.O. Box 12257  
Research Triangle Park, NC 27709-2257  
(919) 765-5071  
Date: August 4, 2004

  
Mary Kakefuda  
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Attorney Docket No. 20757USCNT8  
U.S. Serial No. 10/625,648

**FILING BY "FIRST CLASS MAIL" UNDER 37 C.F.R. § 1.8**

I hereby certify that the following correspondence is being deposited with the United States Postal Service as "First Class Mail" with proper postage in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313, on August 4, 2004.

- 1) Information Disclosure Statement
- 2) Form PTO-1449
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Melissa Hardy

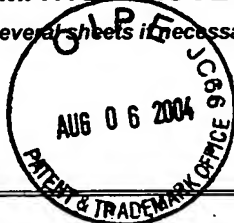
Name

Melissa Hardy

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	AA	5,407,808	4/18/95	Halling et al.	435	34	12/20/93
	AB	5,451,513	9/19/95	Maliga et al.	435	172.3	8/25/93
	AC	5,530,191	6/25/96	Maliga et al.	800	205	3/24/94
	AD	5,545,817	8/13/96	McBride et al.	800	205	3/11/94
	AE	5,576,198	11/19/96	McBride et al.	435	91.3	12/14/93
	AF	5,693,507	12/2/97	Daniell et al.	435	172.3	6/20/94
	AG	5,767,373	6/16/98	Ward et al.	800	205	6/6/95
	AH	5,939,602	8/17/99	Volrath et al.	800	300	2/28/97
	AI	6,023,012	8/8/00	Volrath et al.			3/30/98
	AJ	4,940,835	7/10/90	Shah et al.	800	205	7/7/86
	AK	4,975,374	12/4/90	Goodman et al.	435	172.3	2/4/87
	AL	5,013,659	5/7/91	Bedbrook et al.	435	172.3	3/4/88

## FOREIGN PATENT DOCUMENTS

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	AM	0 332 104	9/13/89	EP			<input type="checkbox"/>	<input type="checkbox"/>
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	AQ	0 479 359	4/8/92	EP			<input type="checkbox"/>	<input type="checkbox"/>

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

	AR	Al-Hazimi et al., J. Chem. Soc. Perkins Trans. 1. 265-276, 1987
	AS	Allison et al. "Deletion of rpoB reveals a second distinct transcription system in plastids of higher plants" The EMBO Journal, 15:2802-2809 (1996)
	AT	Armbruster et al., "Herbicidal Action of Nitrophenyl Pyrazole Ether MON 12800: Immunolocalization, Ultrastructural, and Physiological Studies", Pestic Biochemistry and Physiology, 47: 21-35 (1993).

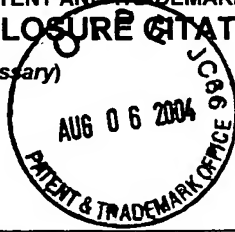
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FORM PTO-1449,  
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	AA	5,539,092	7/23/96	Hasselkorn et al.	536	23.2	10/2/92
	AB						
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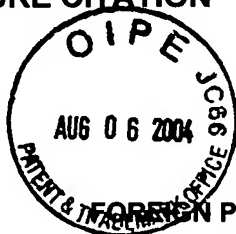
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	AH2	WO95/20668	8/3/95	PCT			<input type="checkbox"/>	<input type="checkbox"/>
	AI2	WO95/25787	9/28/95	PCT			<input type="checkbox"/>	<input type="checkbox"/>
	AJ2	WO95/34659	12/21/95	PCT			<input type="checkbox"/>	<input type="checkbox"/>
	AK2	WO96/04781	2/22/96	PCT			<input type="checkbox"/>	<input type="checkbox"/>
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	AY2						<input type="checkbox"/>	<input type="checkbox"/>

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	AA3	Aspegren et al., "Secretion of a heat-stable fungal beta-glucanase from transgenic suspension-cultured barley cells," Molecular Breeding, 1: 91-99 (1995)
	AB3	Becerril et al., "Acifluorfen Effects on Intermediates of Chlorophyll Synthesis in Green Cucumber Cotyledon Tissues", Pesticide Biochemistry and Physiology, 35: 119-126 (1989).
	AC3	Bilang et al., "Containing excitement over transplastomic plants," Nature Biotechnology, 16: 333-334 (1998)
	AD3	Brenner et al., "Cloning of murine ferrocheletase", Proc. Natl. Acad. Sci. USA 88: 849-853 (1991).
	AE3	Brenner et al., "A FLUOROMETRIC ASSAY FOR MEASUREMENT OF PROTOPORPHYRINOGEN OXIDASE ACTIVITY IN MAMMALIAN TISSUE", Clinica Chimica Acta, 100: 259-266 (1980).
	AF3	Camadro et al., "A NEW ASSAY FOR PROTOPORPHYRINOGEN OXIDASE - EVIDENCE FOR A TOTAL DEFICIENCY IN THAT ACTIVITY IN A HEME-LESS MUTANT OF SACCHAROMYCES CEREVISIAE", Biochemical and Biophysical Research Communications, 106(3): 724-730 (1982).
	AG3	Camadro et al., "Cloning and Characterization of the Yeast HEM14 Gene Coding for Protoporphyrinogen Oxidase, the Molecular Target of Diphenyl Ether-type Herbicides", The Journal of Biological Chemistry, 271(15): 9120-9128 (1996).
	AH3	Camadro et al., "MOLECULAR PROPERTIES OF YEAST AND LETTUCE PROTOPORPHYRINOGEN OXIDASES", ABSTRACT PAP AM CHEM. SOC., 111. (1-2) (1993).
	AI3	Camadro et al., "Photoaffinity labeling of protoporphyrinogen oxidase, the molecular target of diphenylether-type herbicides", Eur J of Biochem., 229: 669-674 (1995).
	AJ3	Camadro et al., The Journal of Biological Chemistry, 269(51): 32085-32091 (1994).
	AK3	Cardin et al., "Characterization of Protoporphyrinogen Oxidase from Rhodopseudomonas capsulata", Abstracts of the Annual Meeting Am. Soc. Microbiol., Abstract #K-85, 207 (1986).
	AL3	Che et al., "Localization of Target-Site of the Protoporphyrinogen Oxidase-Inhibiting Herbicide S-23142 in Spinacia-oleracea L.", Z. Naturforsch., 48(c): 350-355 (1993).
	AM3	Clarke et al. "Identification and expression of the chloroplast clpP gene in the conifer Pinus contorta" Plant Molecular Biology, 26: 851-862 (1994)
	AN3	Corrigall et al., "INHIBITION OF MAMMALIAN PROTOPORPHYRINOGEN OXIDASE BY ACIFLUORFEN", Biochemistry and Molecular Biology International, 34(6): 1283-1289 (1994).

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AA4	Crews et al., "SYNTHESIS AND HERBICIDAL ACTIVITY OF bis-ARYLOXYBENZENES, A NEW CLASS OF PROTOX INHIBITORS", Abstracts of Papers American Chemical Society, Abstract #044. 209(1-2) (1995).
AB4	Dailey et al., "Expression of a Cloned Protoporphyrinogen Oxidase", The Journal of Biological Chemistry, 269(2):813-815 (1994)
AC4	Dailey T.A. et al., "Cloning, Sequence, and Expression of Mouse Protoporphyrinogen Oxidase", Archives of Biochemistry and Biophysics, 324(2): 379-384 (1995).
AD4	Dailey T.A. et al., "Human protoporphyrinogen oxidase: Expression, purification, and characterization of the cloned enzyme", Protein Science, 5: 98-105 (1996).
AE4	Daniell et al., "Containment of herbicide resistance through genetic engineering of the chloroplast genome," Nature Biotechnology, 16: 345-348 (1998)
AF4	Datta et al., "Transformation of the Tobacco Chloroplast Genome with the <i>aroA</i> Gene to Confer Glyphosate Tolerance," Supplement to Plant Physiology, 111(2): 790 (1996)
AG4	Derrick, Peter Michael, "An investigation into the mode of action of the herbicide M&B 39279", Dissertation Abstracts International, 50(10): 4283-B (1996).
AH4	Deybach et al., "The mitochondrial location of protoporphyrinogen oxidase", Eur. J. Biochem., 149(2): 431-436 (1985).
AI4	Duke et al., "Porphyrin Pesticides Chemistry, Toxicology, and Pharmaceutical Applications", ACS Symposium Series 559, American Chemical Society, 1-318 (1994).
AJ4	Duke et al., "Protoporphyrinogen Oxidase-Inhibiting Herbicides", Weed Science, 39: 465-473 (1991).
AK4	Duke et al., "Protoporphyrinogen Oxidase as the Optimal Herbicide Site in the Porphyrin Pathway", ACS SYMP. SER. - Porphyrin Pesticides 191-204 (1994)
AL4	Duke et al., "PROSPECTS FOR HERBICIDES DESIGNED FOR SITES OF ACTION IN THE PORPHYRIN PATHWAY BEYOND PROTOPORPHYRINOGEN OXIDASE", Abstracts of Papers American Chemical Society, Abstract #129, 206(1-2) (1993).
AM4	Duke, S.O., "PESTICIDES THAT ACT THROUGH PROPHYRIN ACCUMULATION", Abstracts of the 22nd Annual Meeting of the American Society for Photobiology, Abstract #SPM-B2, 59 (Spec. Issue) (1994).
AN4	Elder et al., "A Radiochemical Method for the Measurement of Coproporphyrinogen Oxidase and the Utilization of Substrates other than Coproporphyrinogen III by the Enzyme from Rat Liver", Biochem. J., 169: 205-214 (1978).

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	AA5	Ems et al. "Transcription, splicing and editing of plastid RNAs in the nonphotosynthetic plant <i>Epifagus virginiana</i> " <i>Plant Molecular Biology</i> , 29: 721-733 (1995)
	AB5	EMBL SEQUENCE DATABASE ACC. NO M22063 REL. 19 22-APR-1989
	AC5	EMBL SEQUENCE DATABASE ACC. NO. T43573, REL. NO. 42, 3-FEB-1995
	AD5	Falbel et al., "Characterization of a Family of Chlorophyll-Deficient Wheat ( <i>Triticum</i> ) and Barley ( <i>Hordeum vulgare</i> ) Mutants with Defects in the Magnesium-Insertion Step of Chlorophyll Biosynthesis", <i>Plant Physiology</i> (Rockville), 104: 639-648 (1994).
	AE5	Ferreira et al., "Organization of the Terminal Two Enzymes of the Heme Biosynthetic Pathway ORIENTATION OF PROTOPORPHYRINOGEN OXIDASE AND EVIDENCE FOR A MEMBRANE COMPLEX", <i>The Journal of Biological Chemistry</i> , 263(8): 3835-3839 (1988).
	AF5	Frustaci et al., "The <i>Escherichia coli</i> <i>visA</i> Gene Encodes Ferrochelatase, the Final Enzyme of the Heme Biosynthetic Pathway", <i>Journal of Bacteriology</i> , 175(7): 2154-2156 (1993).
	AG5	Gollub et al., "Yeast Mutants Deficient in Heme Biosynthesis and a Heme Mutant Additionally Blocked in Cyclization of 2,3-Oxidosqualene", <i>The Journal of Biological Chemistry</i> , 252(9): 2846-2854 (1977).
	AH5	Guo et al., "High-performance liquid chromatographic assays for protoporphyrinogen oxidase and ferrochelatase in human leukocytes", <i>Journal of Chromatography Biomedical Applications</i> , 566: 383-396 (1991).
	AI5	Hallahan et al., <i>Plant Physiol.</i> 100: 1211-1216, 1992
	AJ5	Hansson et al., "Bacillus subtilis Hem Y Is a Peripheral Membrane Protein Essential for Protoheme IX Synthesis Which Can Oxidize Coproporphyrinogen III and Protoporphyrinogen IX", <i>Journal of Bacteriology</i> , 176(19): 5962-5970 (1994).
	AK5	Hansson et al., "Cloning and Characterization of the Bacillus subtilis hemEHY Gene Cluster, Which Encodes Protoheme IX Biosynthetic Enzymes", <i>J. Bacteriol.</i> 174(24) 8081-8093 (1992)
	AL5	Heifetz et al., "Chemical regulation of nuclear and plastid transgenes in plants," Supplement to <i>Plant Physiology</i> , 114(3): 308 (1997)
	AM5	Huang et al. "The <i>Chlamydomonas</i> chloroplast <i>clpP</i> gene contains translated large insertion sequences and is essential for cell growth" <i>Mol Gen Genet</i> , 244: 151-159 (1994)
	AN5	Ichinose et al., "Selection and Characterization of Protoporphyrinogen Oxidase Inhibiting Herbicide (S23142) Resistant Photomixotrophic Cultured Cells of <i>Nicotiana tabacum</i> ", <i>J. Plant Physiol.</i> , 146: 693-698 (1995)

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AA6	Ihara et al., "Peroxidizing Phytotoxic Activity of 1,3,4-Thiadiazolidine-2-thiones and 1,2,4-Triazolidine-3,5-dithiones", Journal of Pesticide Science, 20: 41-47 (1995).
AB6	Iida et al., "Isomerization and Peroxidizing Phytotoxicity of Thiadiazolidine-thione Compounds", Z. Naturforsch., 50(c): 186-192 (1995).
AC6	International Search Report PCT/IB 95/00452
AD6	Jacobs et al., "Effect of Diphenyl Ether Herbicides on Oxidation of Protoporphyrinogen to Protoporphyrin in Organellar and Plasma Membrane Enriched Fractions of Barley", Plant Physiol. (Bethesda), 97: 197-203 (1991).
AE6	Jacobs et al., "Oxidation of protoporphyrinogen to protoporphyrin, a step in chlorophyll and haem biosynthesis", Biochem J., 244: 219-224 (1987)
AF6	Jacobs et al., "Porphyrin Accumulation and Export by Isolated Barley (Hordeum-vulgare) Plastids. Effect of Diphenyl Ether Herbicides", Plant Physiol. (ROCKV), 101: 1181-1188 (1993).
AG6	Jacobs J. M. et al., "Terminal Enzymes of Heme Biosynthesis in the Plant Plasma Membrane", Archives of Biochemistry and Biophysics, 323(2): 274-278 (1995).
AH6	Jacobs J.M. et al., "Effects of Diphenyl Ether Herbicides on Porphyrin Accumulation by Cultured Hepatocytes", J. Biochem. Toxicology, 7(2): 87-95 (1992).
AI6	Jacobs J.M. et al., "Effects of the Photobleaching Herbicide, Acifluorfen-methyl, on Protoporphyrinogen Oxidation in Barley Organelles, Soybean Root Mitochondria Soybean Root Nodules, and Bacteria", Archives of Biochemistry and Biophysics, 280(2): 369-375 1990
AJ6	Jacobs J.M. et al., "Protoporphyrinogen Oxidation, an Enzymatic Step in Heme and Chlorophyll Synthesis: Partial Characterization of the Reaction in Plant Organelles and Comparison with Mammalian and Bacterial Systems <sup>1</sup> ", Archives of Biochem and Biophys, 229(1): 312-319 (1984)
AK6	Jacobs N. et al., "Protoporphyrinogen oxidation in plants and rhizobia", Plant Physiol. (Bethesda), #1055 (4 Suppl.) (1989).
AL6	Jacobs N.J. et al., "Assay for Enzymatic Protoporphyrinogen Oxidation, a Late Step in Heme Synthesis", Enzyme (Basel), 28: 206-217 (1982).
AM6	Jacobs N.J. et al., "CHARACTERISTICS OF PURIFIED PROTOPORPHYRINOGEN OXIDASE FROM BARLEY", Biochemical and Biophysical Research Communications, 161(2): 790-796 (1989).
AN6	Jacobs N.J. et al., "MECHANISM OF PROTOPORPHYRIN IX ACCUMULATION IN PLANT CELLS TREATED WITH HERBICIDES INHIBITING PROTOPORPHYRINOGEN OXIDASE", Abstract PAP AM. CHEM. SOC., Abstract #113, 206 (1-2) (1993).

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AA7	Jacobs N.J. et al., "Microbial Oxidation of Protoporphyrinogen an Intermediate in Heme and Chlorophyll Biosynthesis", Archives of Biochemistry and Biophysics, 197(2): 396-403 (1979).
AB7	Jacobs N.J. et al., "Protoporphyrinogen Oxidation, a Step in Heme Synthesis in Soybean Root Nodules and Free-Living Rhizobia", Journal of Bacteriology, 171(1): 573-576 (1989).
AC7	Jansen et al., "Mode of Evolved Photooxidant Resistance to Herbicides and Xenobiotics", Z. Naturforsch Sect. Biosci., 45(c): 463-469 (1990).
AD7	Kataoka et al., "Isolation and Partial Characterization of Mutant Chlamydomonas reinhardtii Resistant to Herbicide S-23142", J. Pesticide Sci., 15:499-451(1990)
AE7	Klemm et al., "Protoporphyrinogen oxidation coupled to nitrite reduction with membranes from Desulfovibrio-gigas", FEMS Microbiology Letters, 61: 61-64 (1989).
AF7	Klemm et al., "Purification and Properties of Protoporphyrinogen Oxidase from an Anaerobic Bacterium, Desulfovibrio-gigas", Journal of Bacteriology, 169(11): 5209-5215 (1987).
AG7	Kohno et al., "Peroxidizing Phytotoxic Activity of Pyrazoles", Journal of Pesticide Science, 20: 137-143 (1995).
AH7	Kolarov et al., "RAT LIVER PROTOPORPHYRINOGEN IX OXIDASE: SITE OF SYNTHESIS AND FACTOR INFLUENCING ITS ACTIVITY", Biochemical and Biophysical Research Communications, 116(2): 383-387 (1983).
AI7	Komives et al., "MECHANISMS OF PLANT TOLERANCE TO PHYTODYNAMIC HERBICIDES", Abstract PAP AM. CHEM. SOC., Abstract #128, 206(1-2) (1993).
AJ7	Koop et al. "Integration of foreign sequences into the tobacco plastome via polyethylene glycol-mediated protoplast transformation" Planta, 199: 193-201 (1996)
AK7	Labbe-Bois R., "The Ferrochelatase from Saccharomyces-Cerevisiae. SEQUENCE, DISRUPTION, AND EXPRESSION OF ITS STRUCTURAL GENE HEM15*", The Journal of Biological Chemistry, 265(13): 7278-7283 (1990).
AL7	Labbe et al., "Fluorometric assays for coproporphyrinogen oxidase and protoporphyrinogen oxidase", Analytical Biochemistry, 149: 248-260 (1985).
AM7	Lee et al., "Cellular Localization of Protoporphyrinogen-Oxidizing Activities of Etiolated Barley (Hordeum vulgare L.) Leaves", Plant Physiol., 102:881-889 (1993)
AN7	Lee et al., "PEROXIDASE INVOLVEMENT IN THE ACCUMULATION OF PROTOPORPHYRIN IX IN ACIFLUORFEN-METHYL-TREATED PLANT TISSUES", Plant Physiology (Rockville), 105(1 Suppl.): 125 (1994).

**EXAMINER****DATE CONSIDERED**

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Heifetz et al.  
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Group

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

AA8	Lee H.J. et al., "Protoporphyrinogen IX-Oxidizing Activities Involved in the Mode of Action of Peroxidizing Herbicides", Journal of Agricultural and Food Chemistry, 42(11): 2610-2618 (1994).
AB8	Li et al., "An h.p.l.c. assay for protoporphyrinogen oxidase activity in rat liver", Biochem. J., 243: 863-866 (1987).
AC8	Lyga et al., "Synthesis, Mechanism of Action, and QSAR of Herbicidal 3-Substituted-2-aryl-4,5,6,7-tetrahydroindazoles", Pesticide Science, 42: 29-36 (1994).
AD8	Madsen et al., "A soybean coproporphyrinogen oxidase gene is highly expressed in root nodules", Plant Molecular Biology, 23: 35-43, (1993)
AE8	Martasek et al., "Homozygous hereditary coproporphria caused by an arginine to tryptophan substitution in coproporphyrinogen oxidase and common intragenic polymorphisms", Human Molecular Genetics, 3(3): 477-480 (1994).
AF8	Martasek et al., "Molecular cloning, sequencing, and functional expression of a cDNA encoding human coproporphyrinogen oxidase", Proceedings of the National Academy of Sciences of the United States of America, 91: 3024-3028 (1994).
AG8	Matringe et al., "Characterization of [3H]acifluorfen binding to purified pea etioplasts, and evidence that protoporphyrinogen oxidase specifically binds acifluorfen", Eur. J. Biochem., 209: 861-868 (1992).
AH8	Matringe et al., "Localization within Chloroplasts of Protoporphyrinogen Oxidase, the Target Enzyme for Diphenylether-like Herbicides", The Journal of Biological Chemistry, 267(7):4646-4651 (1992)
AI8	Matringe et al., "Protoporphyrinogen oxidase as a molecular target for diphenyl ether herbicides", Biochem. J., 260:231-235 (1989)
AJ8	Matringe et al., "Protoporphyrinogen oxidase inhibition by three peroxidizing herbicides: oxadiazon, LS 82-556 and M&B 39279", FEBS LETTERS, 245(1,2): 35-38 (1989)
AK8	Matsumoto et al., "A Rapid and Strong Inhibition of Protoporphyrinogen Oxidase from Several Plant Species by Oxyfluorfen", Pesticide Biochemistry and Physiology, 47: 113-118 (1993).
AL8	Matsumoto et al., "VARIATION IN CROP RESPONSE TO PROTOPORPHYRINOGEN OXIDASE INHIBITORS", Abstract. PAP AM. CHEM. SOC., Abstract #124, 206 (1-2) (1993).
AM8	McBride et al., "Controlled expression of plastid transgenes in plants based on a nuclear DNA-encoded and plastid-targeted T7 RNA polymerase," Proc.Natl. Acad. Sci., 91: 7301-7305 (1994)
AN8	Mullet, John E., "Dynamic Regulation of Chloroplast Transcription", Plant Physiology, 103: 309-313 (1993)

EXAMINER

DATE CONSIDERED

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Heifetz et al.  
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Group

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

	AA9	Nakayashiki et al., "Cloning and sequencing of a previously unidentified gene that is involved in the biosynthesis of heme in Escherichia coli", Gene (Amsterdam), 153: 67-70 (1995).
	AB9	Nandihalli et al., "Correlation of Protoporphyrinogen Oxidase Inhibition by O-Phenyl Pyrrolidino- and Piperidino-Carbamates with their Herbicidal Effects", Pestic. Sci., 35: 227-235 (1992).
	AC9	Nandihalli et al., "Enantioselectivity of Protoporphyrinogen Oxidase-Inhibiting Herbicides", Pesticide Science, 40: 265-277 (1994).
	AD9	Nandihalli et al., "Relationships between Molecular Properties and Biological Activities of O-Phenyl Pyrrolidino- and Piperidinocarbamate Herbicides", J. Agri. Food Chem., 40(10): 1993-2000 (1992).
	AE9	Nandihalli et al., "THE PORPHYRIN PATHWAY AS A HERBICIDE TARGET SITE", Abstract #140 PAP AM. CHEM. SOC., 203 (1992).
	AF9	Nicolaus et al., "Binding Affinities of Peroxidizing Herbicides to Protoporphyrinogen Oxidase from Corn", Pesticide Biochemistry and Physiology, 51: 20-29 (1995).
	AG9	Nicolaus et al., "Molecular Aspects of Herbicide Action on Protoporphyrinogen Oxidase", Z. Naturforsch., 48(c): 326-333 (1993).
	AH9	Nishimura et al., "Cloning of a Human cDNA for Protoporphyrinogen Oxidase by Complementation in Vivo of a hemG Mutant of Escherichia coli", J. of Biological Chemistry, 270(14): 8076-8080 (1995)
	AI9	O'Neill et al. "Chloroplast transformation in plants: polyethylene glycol (PEG) treatment of protoplasts is an alternative to biolistic delivery systems" The Plant Journal, 3(5): 729-738 (1993)
	AJ9	Oshio et al., "Isolation and Characterization of a Chlamydomonas reinhardtii Mutant Resistant to Photobleaching Herbicides", Z. Naturforsch. 48c: 339-344 (1993)
	AK9	Pen et al., "Production of Active Bacillus Licheniformis Alpha-Amylase in Tobacco and its Application in Starch Liquefaction," Bio/Technology, 10(3): 292-296 (1992)
	AL9	Pornprom et al., "Characterization of Oxyfluorfen Tolerance in Selected Soybean Cell Line", Pesticide Biochemistry and Physiology 50: 107-114 (1994)
	AM9	Pornprom et al., "Selection for Herbicide Tolerance in Soybean Using Cell Suspension Culture", Weed Research, 39(2): 102-108 (1994)
	AN9	Prasad A.R.K. et al., "GENERATION OF RESISTANCE TO THE DIPHENYL ETHER HERBICIDE ACIFLUORFEN BY MEL CELLS*", Biochemical and Biophysical Research Communications, 215(1): 186-191 (1995).

EXAMINER

DATE CONSIDERED

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Group

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

AA10	Proulx et al., "Characteristics of murine protoporphyrinogen oxidase", Protein Science, 1: 801-809 (1992).
AB10	Proulx et al., "In situ conversion of coproporphyrinogen to heme by murine mitochondria: Terminal steps of the heme biosynthetic pathway", Protein Science, 2: 1092-1098 (1993).
AC10	Reddy K.N., "MODULATORS OF THE PORPHYRIN PATHWAY BEYOND PROTOX", Abstract PAP. AM. CHEM. SOC., Abstract #127, 206(1-2) (1993).
AD10	Roberts et al., "Partial characterization and assignment of the gene for protoporphyrinogen oxidase and variegate porphyria to human chromosome 1q23", Human Molecular Genetics, 4(12): 2387-2390 (1995).
AE10	Sasarman et al., "Nucleotide sequence of the hemG gene involved in the protoporphyrinogen oxidase activity of Escherichia coli K12", Can. J. Microbiol., 39:1155-1161 (1993)
AF10	Sato et al., "Isomerization and Peroxidizing Phytotoxicity of Thiadiazolidine Herbicides", Z. Naturforsch., 49(c): 49-56 (1994).
AG10	Scalla et al., "INHIBITORS OF PROTOPORPHYRINOGEN OXIDASE AS HERBICIDES: DIPHENYL ETHERS AND RELATED PHOTBLEACHING MOLECULES", Reviews of Weed Science, 6: 103-132 (1994).
AH10	Shanklin et al. "The Stroma of Higher Plant Plastids Contain ClpP and ClpC, Functional Homologs of Escherichia coli ClpP and ClpA: An Archetypal Two-Component ATP-Dependent Protease" The Plant Cell, 7: 1713-1722 (1995)
AI10	Sherman et al., "Physiological Basis for Differential Sensitivities of Plant Species to Protoporphyrinogen Oxidase-Inhibiting Herbicides", Plant Physiol. 97: 280-287 (1991)
AJ10	Sherman et al., "Pyrazole Phenyl Ether Herbicides Inhibit Protoporphyrinogen Oxidase", Pesticide Biochemistry and Physiology, 40: 236-245 (1991).
AK10	Sherman et al., "TISSUE AND CELLULAR LOCALIZATION OF PORPHYRINS IN CUCUMBER COTYLEDON TISSUE WITH INHIBITED PROTOPORPHYRINOGEN OXIDASE", Plant Physiol. (Bethesda), 93 (1Suppl.) (1990).
AL10	Shibata et al., "Isolation and Characterization of a Chlamydomonas reinhardtii Mutant Resistant to an Experimental Herbicide S-23142, Which Inhibits Chlorophyll Synthesis", Research in Photosynthesis, III:567-570 (1992)
AM10	Shimizu et al., "A Novel Isourazole Herbicide, Fluthiacet-Methyl, is a Potent Inhibitor of Protoporphyrinogen Oxidase after Isomerization by Glutathione S-Transferase", Plant and Cell Physiology, 36(4): 625-632 (1995).
AN10	Siepkner et al., "Purification of bovine protoporphyrinogen oxidase: immunological cross-reactivity and structural relationship ferrochelatase", Biochimica et Biophysica Acta, 931: 349-358 (1987).

EXAMINER

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Group

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AA11	Smith et al., "Investigation of the subcellular location of the tetrapyrrole-biosynthesis enzyme coproporphyrinogen oxidase in higher plants", Biochem. J., 292: 503-508 (1993).
AB11	Sriraman "In vivo characterisation of a promoter for the nucleus encoded plastid RNA polymerase" New York Area Plant Molecular Biology Meeting, (1998)
AC11	Staub et al., "Long Regions of Homologous DNA Are Incorporated into the Tobacco Plastid Genome by Transformation", The Plant Cell, 4: 39-45 (1992)
AD11	Struhl, "They new yeast genetics", Nature 305:3 91-397 (1983)
AE11	Svab et al. "High-frequency plastid transformation in tobacco by selection for a chimeric aadA gene" Proc. Natl. Acad. Sci. USA, 90: 913-917 (1993)
AF11	Taketani et al., "The Human Protoporphyrinogen Oxidase Gene (PPOX): Organization and Location to Chromosome 1", Genomics, 29: 698-703 (1995).
AG11	Tietjen K.G., "Quinone Activation of Protoporphyrinogen Oxidase of Barley Plastids", Pestic. Sci., 33: 467-471 (1991).
AH11	Tonkyn et al., "Differential expression of the partially duplicated chloroplast S10 ribosomal operon", Mol Gen Genet, 241: 141-152 (1993)
AI11	Troup et al., "Cloning and Characterization of the Escherichia coli hemN Gene Encoding the Oxygen-Independent Coproporphyrinogen III Oxidase", Journal of Bacteriology, 177(11): 3326-3331 (1995).
AJ11	Troup et al., "Isolation of the hemF Operon Containing the Gene for the Escherichia coli Aerobic Coproporphyrinogen III Oxidase by In Vivo Complementation of a Yeast HEM13 Mutant", Journal of Bacteriology, 176(3): 673-680 (1994).
AK11	Varsano et al., "Competitive interaction of three peroxidizing herbicides with the binding of [3 H]acifluorfen to corn etioplast membranes", FEBS, 272(1,2): 106-108 (1990).
AL11	Viljoen et al., "Protoporphyrinogen oxidase and ferrochelatase in porphyria variegata", European Journal of Clinical Investigation, 13: 283-287 (1983).
AM11	Wang et al., "New Assay Method for Protoporphyrinogen Oxidase Inhibitors Using Chloroplasts Isolated from Spinacia oleracea L", Bioscience Biotechnology and Biochemistry, 57(12): 2205-2206 (1993).
AN11	Wepplo et al., "SYNTHESIS AND HERBICIDAL ACTIVITY OF 5-ARYLOXYBENZISOXAZOLE-3-ACETATE ESTERS", Abstr. Pap. Am. Chem. Soc., Abstract #16, 205(1-2) (1993).

EXAMINER

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Group

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent pages, Etc.)

AA12	Witkowski et al., "Inhibition of Plant Protoporphyrinogen Oxidase by the Herbicide Acifluorfen-Methyl", Plant Physiol. (Bethesda), 90: 1239-1242 (1989).
AB12	Wright et al., "Herbicidal Activity of UCC-C4243 and Acifluorfen Is Due to Inhibition of Protoporphyrinogen Oxidase", Weed Science, 43: 47-54 (1995).
AC12	Xu et al., "An Oxygen-Dependent Coproporphyrinogen Oxidase Encoded by the hemF Gene of Salmonella-typhimurium", Journal of Bacteriology, 175(16): 4990-4999 (1993).
AD12	Xu et al., "The Genes Required for Heme Synthesis in Salmonella-typhimurium Include Those Encoding Alternative Functions for Aerobic and Anaerobic Coproporphyrinogen Oxidation", Journal of Bacteriology, 174(12): 3953-3963 (1992).
AE12	Yamato et al., "A Tobacco Soluble Protoporphyrinogen-oxidizing Enzyme Similar to Plant Peroxidases in Their Amino Acid Sequences and Immunochemical Reactivity", Bioscience Biotechnology and Biochemistry, 59(3): 558-559 (1995).
AF12	Yamato et al., "Purification and characterization of a protoporphyrinogen-oxidizing enzyme with peroxidase activity and light-dependent herbicide resistance in tobacco cultured cells", Pestic. Biochem. Physiol., 50: 72-82 (1994).
AG12	Kenneth Cline, The Journal of Biological Chemistry, 261 No. 31: 14802-14810, 1986
AH12	Vorst et al., Gene, 65: 59-69, 1988
AI12	Smeekens et al., Cell, 46:365-375, 1986
AJ12	Pilon et al., The Journal of Biological Chemistry, 270 No. 8: 3882-3893, 1995
AK12	Pyke, K. A., "Plastid Division and Development", Plant Cell, 11: 549-556 (1999)
AL12	
AM12	
AN12	

EXAMINER

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